

IN THE CLAIMS:

Please amend the claims as shown below.

1. (Currently Amended) An information processing apparatus comprising:
  - a plurality of input means for inputting different types of information;
  - conversion means for converting information input from any of said plurality of input means into a word character string representing the information;
  - storage means for storing a plurality of words character strings converted by said conversion means with an input time thereof;
  - sorting means for sorting the plurality of words character strings stored in said storage means in an order of the input time;
  - a knowledge base for storing knowledge of each concept which includes a word character string representing the concept, a concept type of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a word character string representing the concept instance to be filled in each slot and a grammar of the word character string representing the concept;
  - input concept instance generating means for generating a plurality of input concept instances corresponding to the plurality of words character strings sorted in the input time order by said sorting means, by referring to the knowledge stored in said knowledge base;

request information list generating means for generating a request information list which includes, for each of the plurality of input concept instances, an instance request for filling respective slots with specified concept instances in accordance with the concept instance rule of the input concept instance and a surface request for obeying a specified order of character strings and a specific grammar in accordance with the surface rule of the input concept instance, and a concept definition request which does not overlap with any existing requests in accordance with a different concept instance rule defined in a concept definition for the concept type of the input concept instance;

applicable request list generating means for generating an applicable request list by generating combinations each of which includes an applicable concept request in the request information list and a corresponding concept instance in the plurality of input concept instances, and excluding a combination which does not satisfy the surface request in the request information list and a combination which includes an applicable concept request competing with other requests from the generated combinations, included from among the request list; and

concept instance unifying means for unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot ~~defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule~~ applying an applicable request in the applicable request list.

2. to 9. (Cancelled)

10. (Currently Amended) An information processing apparatus according to claim 1, ~~wherein said~~ further comprising status acquisition means for acquiring an ~~acquires the~~ operation status of [[the]] a program executed in said apparatus at an input time.

11. (Previously Presented) An information processing apparatus according to claim 1, further comprising status storage means for storing a past status, wherein said status concept instance generating means generates the status concept instance in accordance with the past status read from said status storage means.

12. (Original) An information processing apparatus according to claim 1, wherein said input means can input key information.

13. (Original) An information processing apparatus according to claim 12, wherein said input means can input character information by converting the key information.

14. (Original) An information processing apparatus according to claim 1, wherein said input means can input speech information.

15. (Original) An information processing apparatus according to claim 14, wherein said input means can input character information by recognizing the speech information and converting the speech information into character information.

16. (Original) An information processing apparatus according to claim 1, wherein said input means can optically input image information.

17. (Original) An information processing apparatus according to claim 16, wherein said input means can input character information of the image information by optically recognizing the image information.

18. (Original) An information processing apparatus according to claim 1, wherein said input means can input hand-written information.

19. (Original) An information processing apparatus according to claim 18, wherein said input means can input the hand-written character information by recognizing the hand-written character information on line.

20. to 22. (Canceled)

23. (Currently Amended) An information processing method performed in an apparatus, said method comprising:

an input step, of inputting different types of information by a plurality of input units;

a conversion step, of converting information input from any of said plurality of input units into a ~~word~~ character string representing the information;

a storing step, of storing a plurality of words character strings converted in said conversion step with an input time thereof in a storage unit;

a sorting step, of sorting the plurality of words character strings stored in the storage unit in an order of the input time;

an input concept instance generating step, of generating a plurality of input concept instances corresponding to the plurality of words sorted in the input time order in said sorting step, by referring to knowledge stored in a knowledge base, which stores knowledge of each concept which includes a word character string representing the concept, a concept type of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a word character string representing the concept instance to be filled in each slot and a grammar of the word character string representing the concept;

a request information list generating step, of generating a request information list which includes, for each of the plurality of input concept instances, an instance request for filling respective slots with specified concept instances in accordance with the concept instance rule of the input concept instance and a surface request for obeying a specified order of character strings and a specific grammar in accordance with the surface rule of the input concept instance, and a concept definition request which does not overlap with any existing requests in accordance with a different concept instance rule defined in a concept definition for the concept type of the input concept instance;

an applicable request list generating step, of generating an applicable request list by generating combinations each of which includes an applicable concept

request in the request information list and a corresponding concept instance in the plurality of input concept instances, and excluding a combination which does not satisfy the surface request in the request information list and a combination which includes an applicable concept request competing with other requests from the generated combinations, included from among the request list; and

a concept instance unifying step, of unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot ~~defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule~~ applying an applicable request in the applicable request list.

24. to 31. (Cancelled)

32. (Currently Amended) An information processing method according to claim 23, ~~wherein said~~ further comprising a status acquisition step, for acquiring an ~~acquires the~~ operation status of [[the]] ~~a~~ program executed in said apparatus at an input time.

33. (Previously Presented) An information processing method according to claim 23, further comprising a status storing step, of storing a past status, wherein said status concept instance generating step generates the status concept instance in accordance with the past status read in said status storing step.

34. (Original) An information processing method according to claim 23, wherein said input step can input key information.

35. (Original) An information processing method according to claim 34, wherein said input step can input character information by converting the key information.

36. (Original) An information processing method according to claim 23, wherein said input step can input speech information.

37. (Original) An information processing method according to claim 36, wherein said input step can input character information by recognizing the speech information and converting the speech information into character information.

38. (Original) An information processing method according to claim 23, wherein said input step can optically input image information.

39. (Original) An information processing method according to claim 38, wherein said input step can input character information of the image information by optically recognizing the image information.

40. (Original) An information processing method according to claim 23, wherein said input step can input hand written information.

41. (Original) An information processing method according to claim 40, wherein said input step can input the hand-written character information by recognizing the hand-written character information on line.

42. to 44. (Canceled)

45. (Currently Amended) A computer-readable storage medium storing a computer-executable information processing program for controlling a computer to perform information processing in an apparatus, said program comprising:

code for an input step, of inputting different types of information;

code for a conversion step, of converting information input from any of said plurality of input units into a word character string representing the information;

code for a storing step, of storing a plurality of words character strings converted by said conversion code with an input time thereof in a storage unit;

code for a sorting step, of sorting the plurality of words character strings stored in the storage unit in an order of the input time;

code for an input concept instance generating step, of generating a plurality of input concept instances corresponding to the plurality of words character strings sorted in the input time order by said sorting code, by referring to knowledge stored in a knowledge base, which stores knowledge of each concept which includes a word character string representing the concept, a concept type of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a



word character string representing the concept instance to be filled in each slot and a grammar of the word character string representing the concept;

code for a request information list generating step, of generating a request information list which includes, for each of the plurality of input concept instances, an instance request for filling respective slots with specified concept instances in accordance with the concept instance rule of the input concept instance and a surface request for obeying a specified order of character strings and a specific grammar in accordance with the surface rule of the input concept instance, and a concept definition request which does not overlap with any existing requests in accordance with a different concept instance rule defined in a concept definition for the concept type of the input concept instance;

code for an applicable request list generating step, of generating an applicable request list by generating combinations each of which includes an applicable concept request in the request information list and a corresponding concept instance in the plurality of input concept instances, and excluding a combination which does not satisfy the surface request in the request information list and a combination which includes an applicable concept request competing with other requests from the generated combinations, included from among the request list; and

code for a concept instance unifying step, of unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule applying an applicable request in the applicable request list.